



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,542	04/15/2005	Volkmar Schulz	PHDE020236US	1450

38107 7590 07/21/2006

PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
595 MINER ROAD  
CLEVELAND, OH 44143

EXAMINER
----------

FETZNER, TIFFANY A

ART UNIT	PAPER NUMBER
----------	--------------

2859

DATE MAILED: 07/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/531,542

Applicant(s)

SCHULZ ET AL.

Examiner

Tiffany A. Fetzner

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/15/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

2. The information disclosure statement (IDS) submitted on 04/15/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement. The initialed and dated information disclosure statement is attached to this office action.

### *Drawings*

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- A) In **figure 8** there is no "**T**" component shown as taught on page 9 line 9.
- B) In **figure 8** there is no "**connection lead 13**" component shown as taught on page 9 line 3, or throughout the description of figure 8. [See page 9 line 1 through page 10 line 12].
- C) In **figure 6** there is no "**T**" component shown as taught on page 8 line 2.
- D) In **figure 6** there are no component "**transformers 141, 142**" shown as taught on page 8 line 2.
- E) In **figure 4** there is no "**1412**" component shown, as taught on page 7 in lines 25 and 28..
- F) In **figure 3** there is no "**312**" component shown, as taught on page 6 line 33.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required

Art Unit: 2859

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

**A) Figure 4** shows a component **142**, which is not taught with respect to figure 4 [See page 7 lines 22-28]. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

5. The disclosure is objected to because of the following informalities:

**A)** The component numbers 1412, and 312 are not shown in applicant's figures and appear to be typographical errors. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2859

6. **Claims 1, 2, 5, 6, and 8** are rejected under **35 U.S.C. 102(e)** as being anticipated by **Vrijheid** US patent **6,496,006 B1** issued December 17<sup>th</sup> 2002, filed June 8<sup>th</sup> 2000.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

7. With respect to **Claim 1**, **Vrijheid** teaches and shows "A magnetic resonance imaging apparatus" [See figure 1] "which is provided with at least one electrical accessory device" (i.e. electrically powered connection equipment 62 and 64) "for use during the examination of an object," [See abstract, col. 1 line 60 through col. 4 line 57] "as well as with a connection lead" (i.e. components 46-1, 46-2; 50-1, 50-2; 32, or 56 or supply conductors 66,68) "which is to be guided through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field, and which lead is intended to connect the accessory device" (i.e. electrically powered connection equipment 62 and 64; see col. 3 line 51 through col. 4 line 57) "to a connection unit," [See figures 1, 2, and 3; the abstract; and col. 1 line 60 through col. 4 line 57] "at least one lead segment" (i.e. segments 72-1, 72-2, 72-I of the electrical supply for the accessory device) "having a length which is limited by at least one inductive coupling element" (i.e. inductance elements 74-1, 74-2, 74-i) "and is unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ ", because the RF wavelength  $\lambda$  is shorter than one quarter (i.e.  $\lambda / 4$ ) of the wavelength of the RF radiation and preferably shorter than  $1/20^{\text{th}}$  of said wavelength. [See figures 1, 2, and 3 the abstract and col. 1 line 60 through col. 4 line 57; especially col. 3 line 36 through col. 4 line 57, in combination with col. 4 lines 13-19.]

8. With respect to **Claim 2**, **Vrijheid** teaches and shows that "the length of the lead segment" (i.e. the electrical supply for the accessory device, segments 72=1, 72-2, 72-I,) "is in the range of from  $\lambda / 4$  to  $\lambda / 8$ ." [See col. 4 lines 13-19; in combination with

Art Unit: 2859

figures 1, 2, and 3; as well as the abstract.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

9. With respect to **Claim 5**, **Vrijheid** teaches and shows that " the inductive coupling element is a conductor loop." (i.e. inductance elements 74-1, 74-2, 74-i) [See figure 3,col. 4 lines 13-57. ] The same reasons for rejection, obviousness, and motivation to combine, that apply to **claim 1** also apply to **claim 5** and need not be reiterated.

10. With respect to **Claim 6**, **Vrijheid** teaches and shows that " the connection lead " (i.e. components of the supply conductors 66,68 having segments 72-1, 72-2, 72-l of the electrical supply for the accessory device, where at least one lead segment) " is a two-wire lead or a coaxial lead." [See figures 3 and 2 in combination; col. 4 lines 34-57; the abstract; and col. 1 line 60 through 2 line 62.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 6** and need not be reiterated.

11. With respect to **Claim 8**, **Vrijheid** teaches and shows that " the inductive coupling element is connected so as to form a " filter "resonant circuit in conjunction with at least one capacitive element," [See col. 1 lines 7-47] "the resonance condition of said" filter "resonant circuit being satisfied for the frequency of a signal to be transferred via the connection lead." (i.e. components 46-1, 46-2; 50-1, 50-2; 32, or 56 or supply conductors 66,68) [See specifically col. 1 lines 7-47; and in general col. 1 line 60 through col. 4 line 57.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 8** and need not be reiterated.

12. **Claims 1, 2, 5, 6, and 8** are rejected under **35 U.S.C. 102(b)** as being anticipated by **Vrijheid** International Publication **WO 00/77926** published December 21<sup>st</sup> 2000.

13. With respect to **Claim 1**, **Vrijheid** teaches and shows "A magnetic resonance imaging apparatus" [See figure 1] "which is provided with at least one electrical accessory device" (i.e. electrically powered connection equipment 62 and 64) "for use during the examination of an object," [See abstract, page 2 line 5 through page 5 line 32] "as well as with a connection lead" (i.e. components 46-1, 46-2; 50-1, 50-2; 32, or 56 or supply conductors 66,68) " which is to be guided through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field,

and which lead is intended to connect the accessory device" (i.e. electrically powered connection equipment 62 and 64; see page 4 line 9 through page 5 line 32)) "to a connection unit," [See figures 1, 2, and 3; the abstract; and page 2 line 5 through page 5 line 32 "at least one lead segment" (i.e. segments 72-1, 72-2, 72-I of the electrical supply for the accessory device) "having a length which is limited by at least one inductive coupling element" (i.e. inductance elements 74-1, 74-2, 74-i) "and is unequal to  $n\lambda/2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ ", because the RF wavelength  $\lambda$  is shorter than one quarter (i.e.  $\lambda/4$ ) of the wavelength of the RF radiation and preferably shorter than  $1/20^{\text{th}}$  of said wavelength. [See figures 1, 2, and 3 the abstract and page 2 line 5 through page 5 line 32; especially page 4 line 9 through page 5 line 32, in combination with page 5 lines 4-8.]

14. With respect to **Claim 2**, **Vrijheid** teaches and shows that "the length of the lead segment" (i.e. the electrical supply for the accessory device, segments 72-1, 72-2, 72-I,) "is in the range of from  $\lambda/4$  to  $\lambda/8$ ." [See page 5 lines 4-8; in combination with figures 1, 2, and 3; as well as the abstract.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

15. With respect to **Claim 5**, **Vrijheid** teaches and shows that " the inductive coupling element is a conductor loop." (i.e. inductance elements 74-1, 74-2, 74-i) [See figure 3 page 5 lines 4-32.] The same reasons for rejection, obviousness, and motivation to combine, that apply to **claim 1** also apply to **claim 5** and need not be reiterated.

16. With respect to **Claim 6**, **Vrijheid** teaches and shows that " the connection lead " (i.e. components of the supply conductors 66,68 having segments 72-1, 72-2, 72-I of the electrical supply for the accessory device, where at least one lead segment) " is a two-wire lead or a coaxial lead." [See figures 3 and 2 in combination; page 5 lines 18-32; the abstract; and page 2 line 5 through page 3 line 7.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 6** and need not be reiterated.

17. With respect to **Claim 8**, **Vrijheid** teaches and shows that "the inductive coupling element is connected so as to form a filter resonant circuit in conjunction with at least one capacitive element," [See page 1 lines 1-27] "the resonance condition of said filter resonant circuit being satisfied for the frequency of a signal to be transferred via the connection lead." (i.e. components 46-1, 46-2; 50-1, 50-2; 32, or 56 or supply conductors 66,68) [See specifically col. 1 lines 1-27; and in general page 2 line 5 through page 5 line 32.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 8** and need not be reiterated.

18. **Claims 1-11** are rejected under both **35 U.S.C. 102(a)** and **35 U.S.C. 102(e)** as being anticipated by **Gilderdale** US patent 6,543,189 B1 issued September 17<sup>th</sup> 2002, filed November 15<sup>th</sup> 2000

19. With respect to **Claim 1**, **Gilderdale** teaches and shows "A magnetic resonance imaging apparatus" probe [See col. 1 lines 5-60; figures 2 and 3] "which is provided with at least one electrical accessory device" (i.e. the MR catheter having the built in probe of the **Gilderdale** invention) "for use during the examination of an object," [See col. 2 line 11 through col. 4 line 29] "as well as with a connection lead" (i.e. feed 3, or central feed 11) which is to be guided through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field, and which lead is intended to connect the accessory device to a connection unit," [See col. 1 line 50 through col. 4 line 29] figures 2 and 3.] "at least one lead segment having a length which is limited by at least one inductive coupling element and is unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ " [See col. 1 lines 35-47; col. 2 lines 28-39; col. 3 lines 13-30; col. 4 lines 19-21.]

20. With respect to **Claim 2**, **Gilderdale** teaches and shows that "the length of the lead segment is in the range of from  $\lambda/4$  to  $\lambda/8$ ." [See col. 1 lines 35-47; col. 2 lines 28-39; col. 3 lines 13-30; where a wavelength of  $\lambda/4$  (i.e. a quarter wavelength) is taught.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.



21. With respect to **Claim 3**, **Gilderdale** teaches that the " inductive coupling element is a" folded-back" transformer." [See col. 2 line 56 through col. 3 line 20; especially col. 3 lines 13-20] The same reasons for rejection, that apply to **claim 1** also apply to **claim 3** and need not be reiterated.

22. With respect to **Claim 4**, **Gilderdale** teaches that "the transformer" [See col. 2 line 56 through col. 3 line 20; especially col. 3 lines 13-20] "is formed by a **toroid** as well as a primary and secondary winding wound thereon." [See the abstract in combination with col. 1 line 5 through col. 4 line 29.] The same reasons for rejection, that apply to **claims 1, 3** also apply to **claim 4** and need not be reiterated.

23. With respect to **Claim 5**, **Gilderdale** teaches and shows that "the inductive coupling element is a conductor loop." [See col. 3 line 60 through col. 4 line 13; col. 3 lines 10-12; col. 2 lines 28-62] The same reasons for rejection, that apply to **claim 1** also apply to **claim 5** and need not be reiterated.

24. With respect to **Claim 6**, **Gilderdale** teaches and shows that "the connection lead is a two-wire lead or a coaxial lead." [See figures 2 and 3; col. 2 line 28 through col. 4 line 29; especially col. 3 line 60 through col. 4 line 21.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 6** and need not be reiterated.

With respect to **Claim 7**, **Gilderdale** teaches " the inductive coupling element is bridged by" 50 "ohmic" impedances (i.e. 'resistors' are a type of impedance, which is considered to fall within the scope of what **Gilderdale** teaches because the internal structure of the baluns, 13 and 14 is not shown, but directly implies from the reference teachings.) "in order to transfer direct voltage signals via the connection lead." [See col. 2 line 28 through col. 3 line 12.] The same reasons for rejection, obviousness, and motivation to combine, that apply to **claim 1** also apply to **claim 7** and need not be reiterated.

25. With respect to **Claim 8**, **Gilderdale** teaches and shows that "the inductive coupling element is connected so as to form a resonant circuit in conjunction with at least one capacitive element," [See figures 2 and 3] "the resonance condition of said resonant circuit being satisfied for the frequency of a signal to be transferred via the

connection lead." [See col. 2 line 13 through col. 4 line 29.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 8** and need not be reiterated.

26. With respect to **Claim 9**, **Gilderdale** teaches and shows that "the accessory device is an RF body coil or a catheter with a transmission and/or receiving unit." [See figures 1, 2, and 3; the abstract, and col. 1 line 7 through col. 4 line 29] The same reasons for rejection, that apply to **claim 1** also apply to **claim 9** and need not be reiterated.

27. With respect to **Claim 10**, **Gilderdale** teaches and shows "A body coil which forms an accessory device for use during the examination of an object by means of a magnetic resonance imaging apparatus provided with a connection lead which is arranged so as to extend through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field and to connect the body coil to a connection unit, at least one lead segment, having a length which is limited by at least one inductive coupling element and is unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ " [See figures 1, 2, 3, the abstract, and col. 1 line 5 through col. 4 line 29] The same reasons for rejection, that apply to **claim 1** also apply to **claim 10** and need not be reiterated.

28. With respect to **Claim 11**, **Gilderdale** teaches and shows "A catheter" [See figures 1, 2, and 3; col. 1 line 7 through col. 4 line 29] "with a transmission and/or receiving unit which forms an accessory device for use during the examination of an object by means of a magnetic resonance imaging apparatus provided with a connection lead which is arranged so as to extend through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field and to connect the transmission and/or receiving unit to a connection unit, at least one lead segment, having a length which is limited by at least one inductive coupling element and is unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ " [See figures 1, 2, 3, the abstract, and col. 1 line 5 through col. 4 line 29] The same reasons for rejection, that apply to **claim 1** also apply to **claim 11** and need not be reiterated.

29. **Claims 1-2, 5-6, and 8-10** are rejected under both **35 U.S.C. 102(b)** and **35 U.S.C. 102(a)** as being anticipated by **Duerr** US patent 5,294,886 issued March 15<sup>th</sup> 1994.

30. With respect to **Claim 1**, **Duerr** teaches and shows "A magnetic resonance imaging apparatus which is provided with at least one electrical accessory device" (i.e. the feeder for the local MRI reception coil, which is decoupled from the MRI excitation transmission antenna) for use during the examination of an object, as well as with a connection lead" (i.e. the input feed of the feeder) "which is to be guided through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field, and which lead is intended to connect the accessory device to a connection unit", [See abstract, col. 2 line 13 through col. 4 line 56] "at least one lead segment" (i.e., one of the decoupling inductance elements 10 of the feeder 9 to the local coil 8, having a length 'a', at intervals 'a' that will generally not exceed 20cm. and preferably be approximately 10cm., as per col. 3 lines 33-51) The examiner notes that the length of the **Duerr** feeder has an overall length of 1 meter as per col. 4 lines 31-32; and that standing waves (i.e. single frequency / single wavelength vibrations) can arise on the feeder, creating a disturbance in the MRI image unless the decoupling elements, of the **Duerr** invention are utilized. Because the decoupling inductance elements 10 of the feeder 9 to the local coil 8, in the **Duerr** invention have a length 'a', at intervals 'a' that will generally not exceed 20cm. and preferably be approximately 10cm., as per col. 3 lines 33-51 the **Duerr** invention has "at least one lead segment having a length which is limited by at least one inductive coupling element and is unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ ", since ( $\lambda = 1\text{m}$ ) and the at least one 10cm to 20cm decoupling element is equal to  $\lambda / 5$  to  $\lambda / 10$ , which is "unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ " [See abstract, col. 2 line 13 through col. 4 line 56; especially col. 4 lines 31-32 with col. 3 lines 33-51 and figure 1].

31. With respect to **Claim 2**, **Duerr** teaches and shows "A magnetic resonance imaging apparatus as claimed in claim 1, in which the length of the lead segment is in

the range of from  $\lambda/4$  to  $\lambda/8$ ." [See abstract, col. 2 line 13 through col. 4 line 56; especially col. 4 lines 31-32 with col. 3 lines 33-51 and figure 1]. The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

32. With respect to **Claim 5**, **Duerr** teaches and shows "the inductive coupling element is a conductor loop." [See figures 2, 3, and 5; col. 3 line 55 through col. 4 line 10.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 5** and need not be reiterated.

33. With respect to **Claim 6**, **Duerr** teaches and shows "the connection lead is a two-wire lead or a coaxial lead." [See figures 2, 3, and 5; col. 3 line 55 through col. 4 line 48] The same reasons for rejection, that apply to **claim 1** also apply to **claim 6** and need not be reiterated.

34. With respect to **Claim 8**, **Duerr** teaches and shows "the inductive coupling element is connected so as to form a resonant circuit in conjunction with at least one capacitive element," [See figures 2, 3, 4, and 5] "the resonance condition of said resonant circuit being satisfied for the frequency of a signal to be transferred via the connection lead." [See abstract, col. 2 line 13 through col. 4 line 56; and figures 2, 3, 4, and 5]. The same reasons for rejection, that apply to **claim 1** also apply to **claim 8** and need not be reiterated.

35. With respect to **Claim 9**, **Duerr** teaches and shows that "the accessory device is an RF body coil or a catheter with a transmission and/or receiving unit." [See the abstract, figures 1 through 5; col. 2 line 13 through col. 4 line 56.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 9** and need not be reiterated.

36. With respect to **Claim 10**, **Duerr** teaches and shows "A body coil which forms an accessory device for use during the examination of an object by means of a magnetic resonance imaging apparatus provided with a connection lead which is arranged so as to extend through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field and to connect the body coil to a connection unit, at least one lead segment, having a length which is limited by at least one inductive coupling element and is unequal to  $n \cdot \lambda/2$ , being connected in the connection lead,

where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ " [See the abstract, figures 1 through 5; col. 2 line 13 through col. 4 line 56.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 10** and need not be reiterated.

37. **Claims 1, 2, 5, 6, 9, and 11** are rejected under both **35 U.S.C. 102(a)** and **35 U.S.C. 102(e)** as being anticipated by **Vrijheid et al.**, US patent application publication **2002/0095084 A1** published July 18<sup>th</sup> 2002, filed November 21<sup>st</sup> 2001.

38. With respect to **Claim 1**, **Vrijheid et al.**, teaches and shows "A magnetic resonance imaging apparatus" [See figure 1] "which is provided with at least one electrical accessory device" (i.e. a catheter 17 connected to a supply and control unit via connection conductor 21 for the transfer of power supply energy) [See abstract] for use during the examination of an object, as well as with a connection lead which is to be guided through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field, and which lead is intended to connect the accessory device to a connection unit, at least one lead segment having a length which is limited by at least one inductive coupling element and is unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ " [See paragraphs [0001] through [0026]; figures 1 and 2; the abstract and especially paragraphs [0023] through [0026] where the segments are shorter than  $\frac{1}{4}$  the wavelength of the RF fields of the MRI apparatus and preferably shorter than  $1/20^{\text{th}}$  of said wavelength.]

39. With respect to **Claim 2**, **Vrijheid et al.**, teaches and shows that "the length of the lead segment is in the range of from  $\lambda/4$  to  $\lambda/8$ ." [See paragraph [0023] and the abstract.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

40. With respect to **Claim 5**, **Vrijheid et al.**, teaches and shows "the inductive coupling element is a conductor loop." [See paragraphs [0022] through [0026] and figure 2] The same reasons for rejection, that apply to **claim 1** also apply to **claim 5** and need not be reiterated.

Art Unit: 2859

41. With respect to **Claim 6, Vrijheid et al.**, teaches and shows "A magnetic resonance imaging apparatus as claimed in claim 1, in which the connection lead is a two-wire lead or a coaxial lead." [See paragraphs [0022] through [0026] and figure 2] The same reasons for rejection, that apply to **claim 1** also apply to **claim 6** and need not be reiterated.

42. With respect to **Claim 9, Vrijheid et al.**, teaches and shows that "the accessory device is an RF body coil or a catheter with a transmission and/or receiving unit." [See the abstract, figure 2, and paragraphs [0002] through [0026]] The same reasons for rejection, that apply to **claim 1** also apply to **claim 9** and need not be reiterated.

43. With respect to **Claim 11, Vrijheid et al.**, teaches and shows "A catheter with a transmission and/or receiving unit which forms an accessory device for use during the examination of an object by means of a magnetic resonance imaging apparatus provided with a connection lead which is arranged so as to extend through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field and to connect the transmission and/or receiving unit to a connection unit, at least one lead segment, having a length which is limited by at least one inductive coupling element and is unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ ." [See the abstract, figures 1 and 2; as well as paragraphs [0001] through [0026]]. The same reasons for rejection, that apply to **claim 1** also apply to **claim 11** and need not be reiterated.

44. **Claims 1, 2, 5, 6, 9, and 11** are rejected under both **35 U.S.C. 102(a)** as being anticipated by **Vrijheid et al.**, International publication **WO 02/42790 A1** published May30<sup>th</sup> 2002.

45. With respect to **Claim 1, Vrijheid et al.**, teaches and shows "A magnetic resonance imaging apparatus" [See figure 1] "which is provided with at least one electrical accessory device" (i.e. a catheter 17 connected to a supply and control unit via connection conductor 21 for the transfer of power supply energy) [See abstract] for use during the examination of an object, as well as with a connection lead which is to be

guided through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field, and which lead is intended to connect the accessory device to a connection unit, at least one lead segment having a length which is limited by at least one inductive coupling element and is unequal to  $n\lambda/2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ " [See page 1 line 1 through page 6 line 31; figures 1 and 2; the abstract and especially page 5 line 13 through page 6 line 31 where the segments are shorter than  $\frac{1}{4}$  the wavelength of the RF fields of the MRI apparatus and preferably shorter than  $1/20^{\text{th}}$  of said wavelength.]

46. With respect to **Claim 2, Vrijheid et al.**, teaches and shows that "the length of the lead segment is in the range of from  $\lambda/4$  to  $\lambda/8$ ." [See page 5 line 13 through page 6 line 31 and the abstract.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

47. With respect to **Claim 5, Vrijheid et al.**, teaches and shows "the inductive coupling element is a conductor loop." [See page 5 line 13 through page 6 line 31 and figure 2] The same reasons for rejection, that apply to **claim 1** also apply to **claim 5** and need not be reiterated.

48. With respect to **Claim 6, Vrijheid et al.**, teaches and shows "A magnetic resonance imaging apparatus as claimed in claim 1, in which the connection lead is a two-wire lead or a coaxial lead." [See page 5 line 13 through page 6 line 31 and figure 2] The same reasons for rejection, that apply to **claim 1** also apply to **claim 6** and need not be reiterated.

49. With respect to **Claim 9, Vrijheid et al.**, teaches and shows that "the accessory device is an RF body coil or a catheter with a transmission and/or receiving unit." [See the abstract, figure 2, and page 1 line 1 through page 6 line 31] The same reasons for rejection, that apply to **claim 1** also apply to **claim 9** and need not be reiterated.

50. With respect to **Claim 11, Vrijheid et al.**, teaches and shows "A catheter with a transmission and/or receiving unit which forms an accessory device for use during the examination of an object by means of a magnetic resonance imaging apparatus

Art Unit: 2859

provided with a connection lead which is arranged so as to extend through an examination zone of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field and to connect the transmission and/or receiving unit to a connection unit, at least one lead segment, having a length which is limited by at least one inductive coupling element and is unequal to  $n \cdot \lambda / 2$ , being connected in the connection lead, where  $\lambda$  denotes the RF wavelength and  $n = 1, 2, 3, \dots$ ." [See the abstract, figures 1 and 2; as well as page 1 line 1 through page 6 line 31]. The same reasons for rejection, that apply to **claim 1** also apply to **claim 11** and need not be reiterated.

### Conclusion

51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

52. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(571) 273-8300**.

53. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
TAF  
July 18, 2006

  
Diego Gutierrez  
Supervisory Patent Examiner  
Technology Center 2800